

# The Atmosphere Archive and Distribution System (AADS)

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# Acknowledgements

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*Louis Gonzales (LOA-USTL), HDFLook updates for image production*

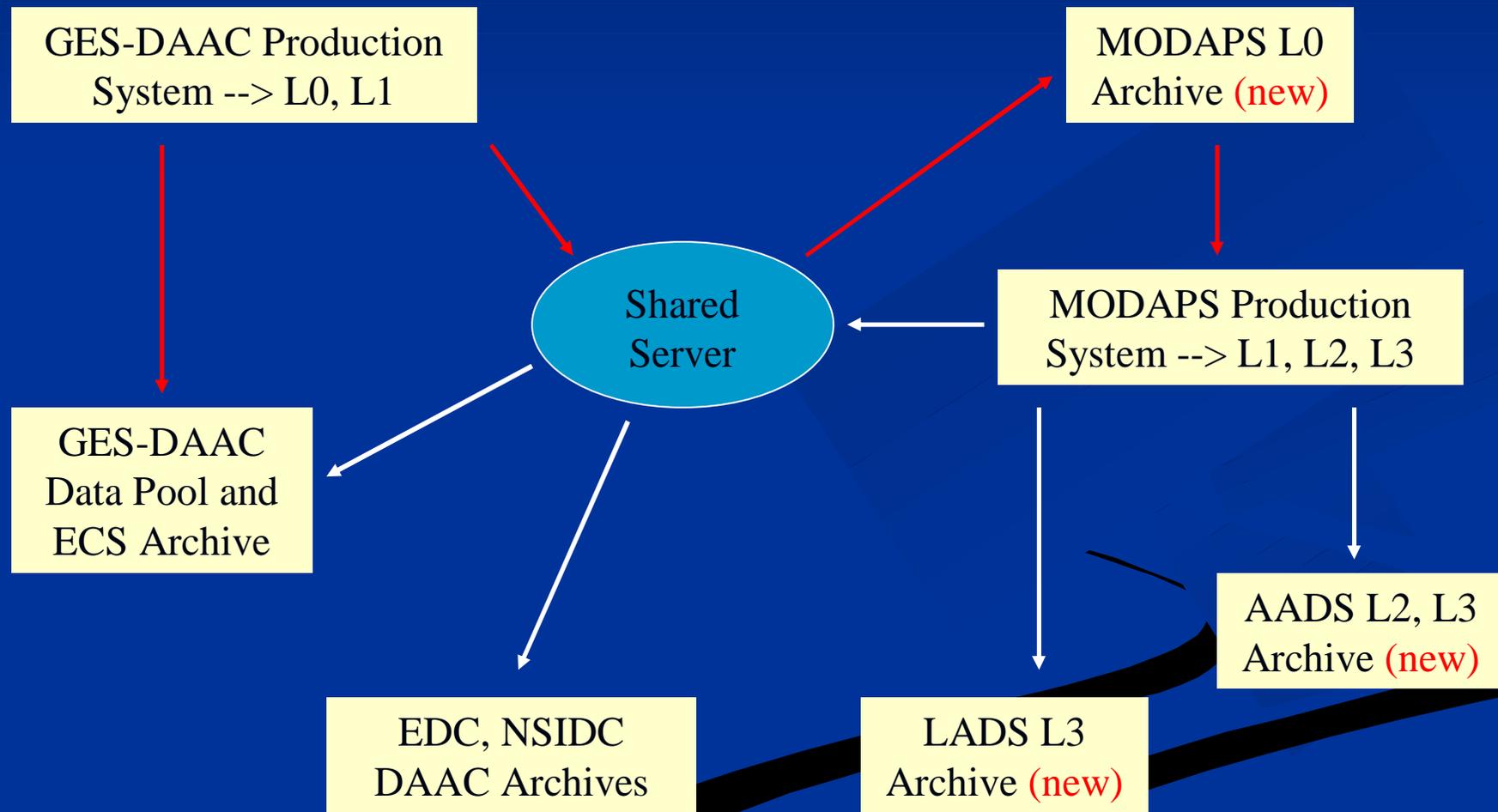
*NCSA development team, HDF compression tool updates*

*HEW subsetter updates (UAH)*

# Outline

- *Schematic overview of MODIS Data flow Level-0 to Level-3*
- *What is AADS ? Who might use it ?*
- *Motivations for a new Online Archive*
- *Research Scenarios*
- *Immediate product delivery via ftp*
- *Quick AADS Web Tour*
- *Browsing the Image Archive*
- *Search and Order*
- *Geographic and Parameter Subsetting*
- *AADS Current Status*
- *Future Plans*

# Overview of MODIS Data flow Level-0 to Level-3



# What is AADS ?

- *AADS now houses Science Test Data for distribution to the Atmosphere Discipline Science Team, including test Collection 4 and 5 Level 2/3 products*
- *AADS will soon offer an online inventory of all MODIS Atmosphere products: Terra and Aqua Levels 2/3 for the complete mission lifetimes*
- *MODAPS will populate AADS with 8+ data years of compressed Collection 5 products and images during the Atmosphere reprocessing campaign planned for April to September of this year*
- *LADS (the Land product analog) now contains L3 science test data, and will be populated with weekly through yearly Level 3 Land products starting in September 2005*
- *Both will offer immediate delivery of native products via anonymous ftp or web download, with browse images for most products*
- *Both will offer geographic/temporal searches and select-to-order functionality*
- *Both will offer data subsetting: by parameter, by geographic cut-out, or by sampling to lower resolution*

# Who might use AADS ?

- *Currently, Science Team access to Collection 5 test products*
- *Researchers who require a large volume or number of MODIS Atmosphere Collection 5 products (with or without subsetting)*
- *Those who want to select and download products immediately*
- *Those who might use ftp script robots to facilitate large or complicated orders*
- *Those who might use global, regional, or granule browse for analysis or to assist in ordering decisions*

# Research Scenarios

- *I have an extensive collection of MODIS Level-2 granule products that I have compared with surface station data. I would like to repeat my analysis with Collection 5 products.*
- *I would like to get aerosol optical thickness and cloud mask data for each MODIS daytime overpass of my site -- about 5000 files. I would like the native products to be reduced in size using parameter and geographic subsetting.*
- *I would like a parameter-subsetted copy of all daily global Level-3 Atmosphere product files for climate research studies.*
- *I would like to see global images of cloud top height and aerosol thickness in order to identify specific days and regions for further analysis of cloud-aerosol interactions.*

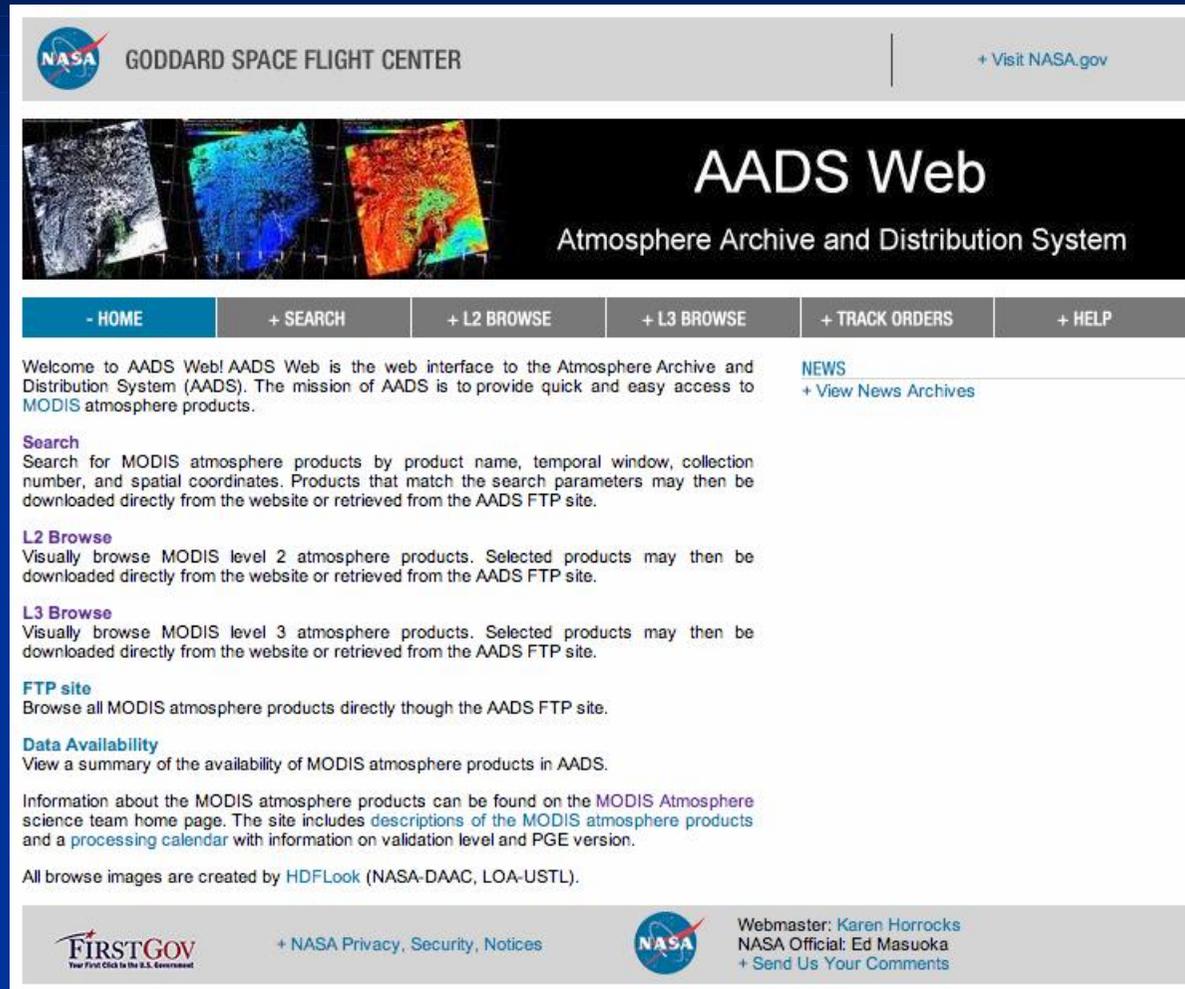
# Motivations for a New Online Archive

- *Desire for rapid, flexible and simple access to all Atmosphere products*
- *Desire to offer browse images interactively*
- *Success of DAAC Data Pools for limited Level 3 data*
- *Precedent of OceanColor Web delivery system*
- *Modest hardware investment*
- *Availability of new and improved tools for HDF data compression --- no significant changes were required of the product suite*

# Immediate Product Delivery via FTP

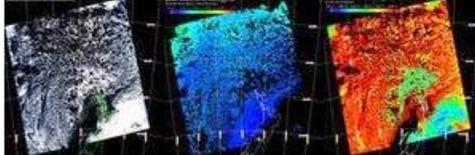
- *When you know what you want --- all MODIS Atmosphere data products will be found in a predictable directory structure --- ideal for script robots acquiring lists of L2 granules or gridded L3 products.*
- *After a simple web search --- orders of native products (without subsetting) can be pulled from a single ftp directory as soon as the order is requested. Immediate gratification --- no delay for data staging.*
- *Compression speeds downloads --- all Level-2 and Level-3 products including cloud mask will be internally compressed starting with Collection 5 in order to reduce online storage and speed network delivery. The compressed products are typically 3-5 times smaller.*

# Quick AADS Web Tour



The screenshot shows the homepage of the AADS Web. At the top left is the NASA logo and the text "GODDARD SPACE FLIGHT CENTER". To the right is a link "+ Visit NASA.gov". Below this is a banner with three satellite images and the text "AADS Web Atmosphere Archive and Distribution System". A navigation bar contains links: "- HOME", "+ SEARCH", "+ L2 BROWSE", "+ L3 BROWSE", "+ TRACK ORDERS", and "+ HELP". The main content area includes a welcome message, a "NEWS" section with a link "+ View News Archives", and several informational sections: "Search", "L2 Browse", "L3 Browse", "FTP site", and "Data Availability". At the bottom, there are logos for "FIRST GOV" and "NASA", along with links for "NASA Privacy, Security, Notices" and contact information for the webmaster and NASA official.

 GODDARD SPACE FLIGHT CENTER + Visit NASA.gov

 **AADS Web**  
Atmosphere Archive and Distribution System

[- HOME](#) [+ SEARCH](#) [+ L2 BROWSE](#) [+ L3 BROWSE](#) [+ TRACK ORDERS](#) [+ HELP](#)

Welcome to AADS Web! AADS Web is the web interface to the Atmosphere Archive and Distribution System (AADS). The mission of AADS is to provide quick and easy access to MODIS atmosphere products.

**NEWS**  
[+ View News Archives](#)

**Search**  
Search for MODIS atmosphere products by product name, temporal window, collection number, and spatial coordinates. Products that match the search parameters may then be downloaded directly from the website or retrieved from the AADS FTP site.

**L2 Browse**  
Visually browse MODIS level 2 atmosphere products. Selected products may then be downloaded directly from the website or retrieved from the AADS FTP site.

**L3 Browse**  
Visually browse MODIS level 3 atmosphere products. Selected products may then be downloaded directly from the website or retrieved from the AADS FTP site.

**FTP site**  
Browse all MODIS atmosphere products directly through the AADS FTP site.

**Data Availability**  
View a summary of the availability of MODIS atmosphere products in AADS.

Information about the MODIS atmosphere products can be found on the [MODIS Atmosphere science team home page](#). The site includes [descriptions of the MODIS atmosphere products](#) and a [processing calendar](#) with information on validation level and PGE version.

All browse images are created by [HDFLook](#) (NASA-DAAC, LOA-USTL).

 [+ NASA Privacy, Security, Notices](#)  Webmaster: Karen Horrocks  
NASA Official: Ed Masuoka  
[+ Send Us Your Comments](#)

<http://aadsweb.nascom.nasa.gov/>

# Browsing the Image Archive

## Level 2 Browse

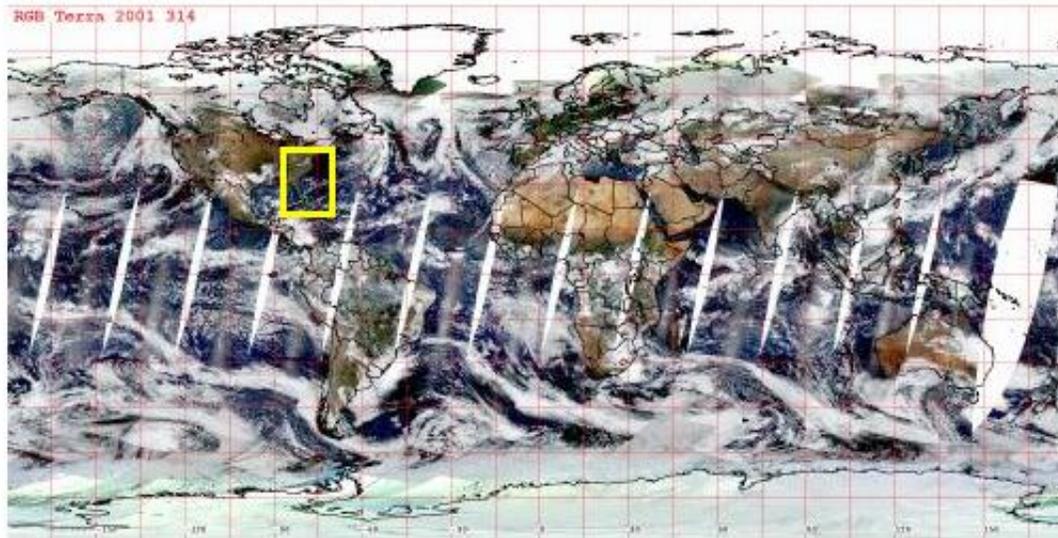
Satellite: Terra  
Date: November 10, 2001  
Parameter: RGB  
Collection: 5

Satellite:  
Aqua:   
Terra:

Month:  Day:  Year:  Parameter:

[+ Previous](#)

[+ View Help](#)



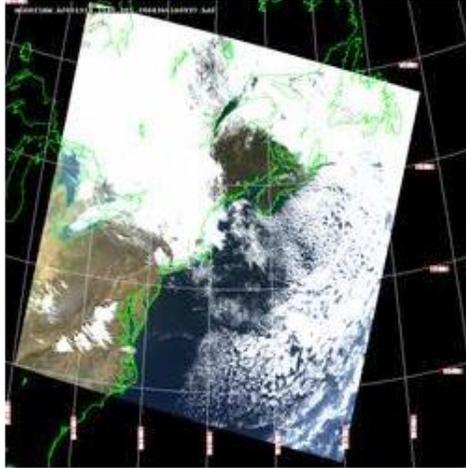
North:   
West:  East:   
South:

[+ View high resolution image of Terra MODIS Level 2 RGB Global Composite for November 10, 2001](#)

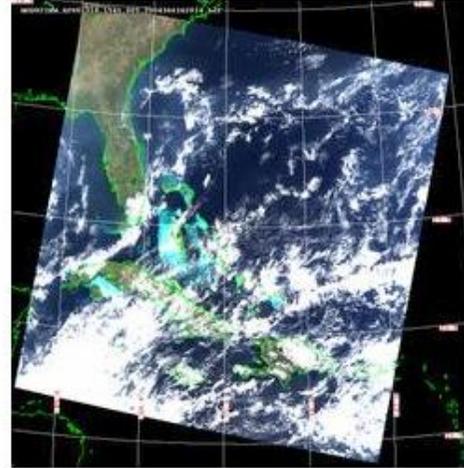
Click on the thumbnail image to view a higher resolution image.

[+ View Help](#)

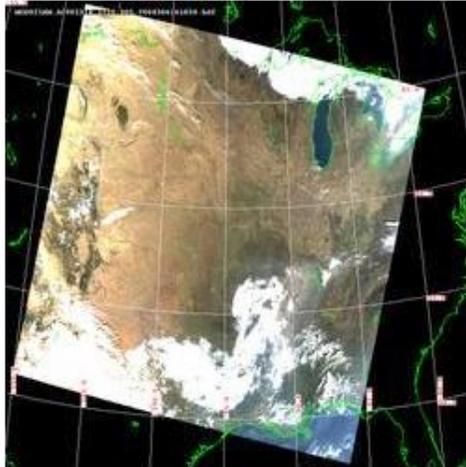
November 10, 2001 15:40



November 10, 2001 15:45



November 10, 2001 17:20



[Order Selected Products](#)

[Select All Checkboxes](#)

[Clear All Checkboxes](#)

## Level 2 Browse Parameter Comparison

Satellite: Terra

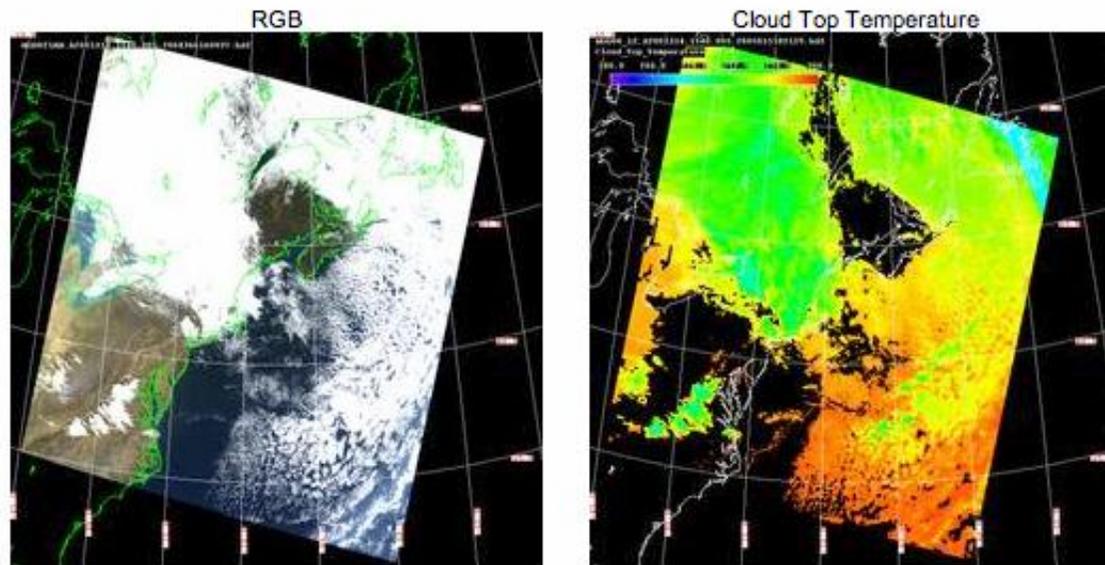
Date: November 10, 2001 15:40

Collection: 5

Parameter:

Cloud Top Temperature

Update



Click on an image to view a high resolution image. Please note that this will open a new browser window.

[+ Return to Terra MODIS RGB for November 10, 2001 15:40](#)

## Level 2 Browse Parameter Comparison

Satellite: Terra

Date: November 10, 2001 15:40

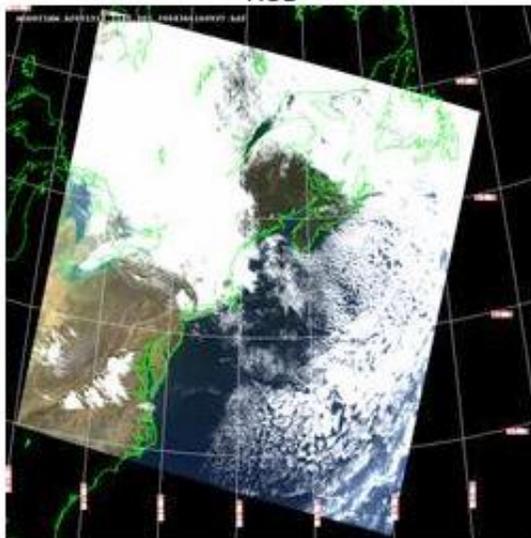
Collection: 5

Parameter:

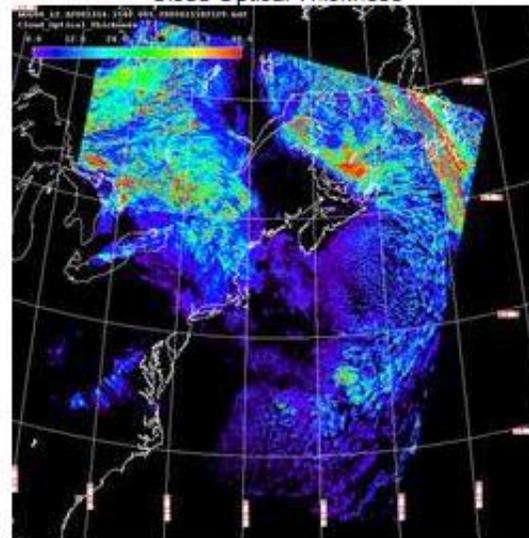
Cloud Optical Thickness

Update

RGB



Cloud Optical Thickness



Click on an image to view a high resolution image. Please note that this will open a new browser window.

[+ Return to Terra MODIS RGB for November 10, 2001 15:40](#)

## Level 2 Browse Parameter Comparison

Satellite: Terra

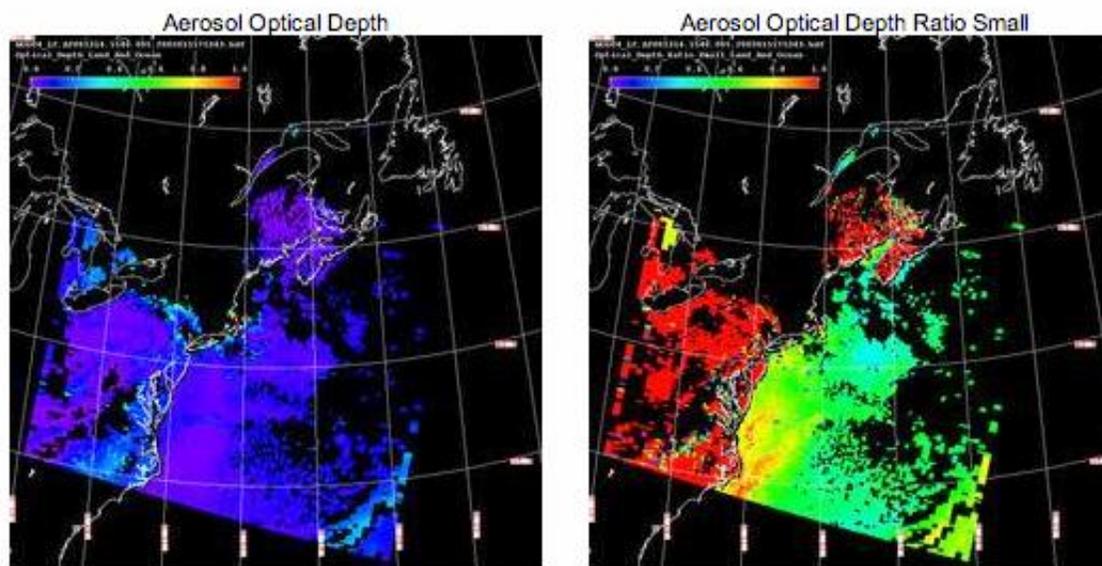
Date: November 10, 2001 15:40

Collection: 5

Parameter:

Aerosol Optical Depth Ratio Small

Update



Click on an image to view a high resolution image. Please note that this will open a new browser window.

[+ Return to Terra MODIS Aerosol Optical Depth for November 10, 2001 15:40](#)

# Search and Order

## Search

### Product Selection

Please select one or more products:

[+ View Help](#)

#### Aqua MODIS Products:

- MYD04\_L2 - Level 2 Aerosol
- MYD05\_L2 - Level 2 Water Vapor
- MYD06\_L2 - Level 2 Cloud
- MYD07\_L2 - Level 2 Atmosphere Profile
- MYD35\_L2 - Level 2 Cloud Mask
- MYDATML2 - Level 2 Joint Atmosphere Product
- MYD08\_D3 - Level 3 Daily Aerosol/Water Vapor/Cloud
- MYD08\_E3 - Level 3 8-day Aerosol/ Water Vapor/Cloud
- MYD08\_M3 - Level 3 Monthly Aerosol/ Water Vapor/Cloud
- MYDCSR\_G - Level 3 Interim Daily Clear Sky Radiance Granules
- MYDCSR\_D - Level 3 Daily Clear Sky Radiance
- MYDCSR\_8 - Level 3 Interim 8-day Clear Sky Radiance Composite

#### Terra MODIS Products:

- MOD04\_L2 - Level 2 Aerosol
- MOD05\_L2 - Level 2 Water Vapor
- MOD06\_L2 - Level 2 Cloud
- MOD07\_L2 - Level 2 Atmosphere Profile
- MOD35\_L2 - Level 2 Cloud Mask
- MODATML2 - Level 2 Joint Atmosphere Product
- MOD08\_D3 - Level 3 Daily Aerosol/Water Vapor/Cloud
- MOD08\_E3 - Level 3 8-day Aerosol/ Water Vapor/Cloud
- MOD08\_M3 - Level 3 Monthly Aerosol/ Water Vapor/Cloud
- MODCSR\_G - Level 3 Interim Daily Clear Sky Radiance Granules
- MODCSR\_D - Level 3 Daily Clear Sky Radiance
- MODCSR\_8 - Level 3 Interim 8-day Clear Sky Radiance Composite

#### Ancillary Products:

- GDAS\_0ZF - One Degree Global Data Assimilation System Data from NOAA NCEP
- NISE - Sea Ice Product
- OZ\_DAILY - Daily TOVS Ozone from NOAA NCEP
- REYNSST - Reynolds Weekly Sea Surface Temperature from NOAA NCEP
- SEA\_ICE - NOAA NCEP Ice Concentration

[+ View descriptions of MODIS atmosphere products](#)

Select All Checkboxes

Clear All Checkboxes

### Temporal Selection

Please enter the start and end date and time in one of the following formats: MM/DD/YYYY [HH:MM] or YYYY-DDD [HH:MM]:

[+ View Help](#)

Start Date and Time:

End Date and Time:

### Collection Selection

Please select a collection number:

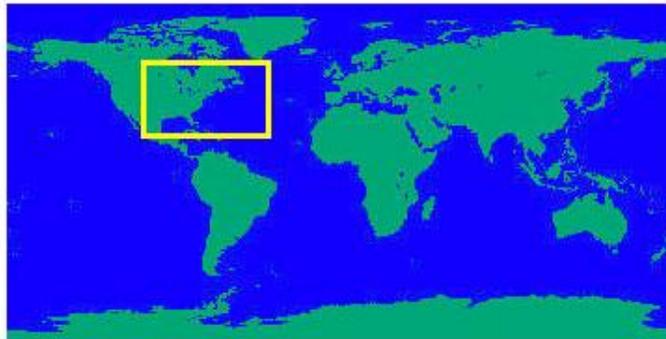
[+ View Help](#)

Collection:

### Spatial Selection

Please enter the spatial coordinates. Users with Javascript enabled browsers may also select one of the predefined regions or use their mouse to select a region on the map.

[+ View Help](#)



Regions:

North:

West:

East:

South:

Continental US  
Coastal West Africa  
US West Coast  
Indian Subcontinent  
Whole Earth  
Sea of Japan

### Coverage Selection

Please select one or more coverage options:

[+ View Help](#)

Coverage Options:

- Day (granules contain day data only)
- Night (granules contain night data only)
- Both (granules contain both day and night data)

## Search Results

[+ View Help](#)

A total of 11 files (12 MB) match the selected parameters.

You may modify your order by selecting or clearing each file's checkbox. You may also select or clear the checkboxes for all files by clicking "Select All Checkboxes" or "Clear All Checkboxes".

Time	Product	File Name	Size	Order	Browse
2001-002 13:15	MOD04_L2	<a href="#">MOD04_L2.A2001002.1315.005.2005014171027.hdf</a>	457 KB	<input checked="" type="checkbox"/>	N/A
2001-002 13:20	MOD04_L2	<a href="#">MOD04_L2.A2001002.1320.005.2005014163541.hdf</a>	1 MB	<input checked="" type="checkbox"/>	+ View Aerosol Optical Depth + View Aerosol Optical Depth Ratio Small
2001-002 13:25	MOD04_L2	<a href="#">MOD04_L2.A2001002.1325.005.2005014170936.hdf</a>	2 MB	<input checked="" type="checkbox"/>	+ View Aerosol Optical Depth + View Aerosol Optical Depth Ratio Small
2001-002 14:55	MOD04_L2	<a href="#">MOD04_L2.A2001002.1455.005.2005014171154.hdf</a>	531 KB	<input checked="" type="checkbox"/>	+ View Aerosol Optical Depth + View Aerosol Optical Depth Ratio Small
2001-002 15:00	MOD04_L2	<a href="#">MOD04_L2.A2001002.1500.005.2005014163238.hdf</a>	1 MB	<input checked="" type="checkbox"/>	+ View Aerosol Optical Depth + View Aerosol Optical Depth Ratio Small
2001-002 15:05	MOD04_L2	<a href="#">MOD04_L2.A2001002.1505.005.2005014171201.hdf</a>	2 MB	<input checked="" type="checkbox"/>	+ View Aerosol Optical Depth + View Aerosol Optical Depth Ratio Small
2001-002 16:35	MOD04_L2	<a href="#">MOD04_L2.A2001002.1635.005.2005014171602.hdf</a>	579 KB	<input checked="" type="checkbox"/>	+ View Aerosol Optical Depth + View Aerosol Optical Depth Ratio Small
2001-002 16:40	MOD04_L2	<a href="#">MOD04_L2.A2001002.1640.005.2005014170549.hdf</a>	1 MB	<input checked="" type="checkbox"/>	+ View Aerosol Optical Depth + View Aerosol Optical Depth Ratio Small
2001-002 16:45	MOD04_L2	<a href="#">MOD04_L2.A2001002.1645.005.2005014171251.hdf</a>	1 MB	<input checked="" type="checkbox"/>	+ View Aerosol Optical Depth + View Aerosol Optical Depth Ratio Small
2001-002 18:15	MOD04_L2	<a href="#">MOD04_L2.A2001002.1815.005.2005014171412.hdf</a>	554 KB	<input checked="" type="checkbox"/>	+ View Aerosol Optical Depth + View Aerosol Optical Depth Ratio Small
2001-002 18:20	MOD04_L2	<a href="#">MOD04_L2.A2001002.1820.005.2005014171519.hdf</a>	1 MB	<input checked="" type="checkbox"/>	+ View Aerosol Optical Depth + View Aerosol Optical Depth Ratio Small

[Select All Checkboxes](#)[Clear All Checkboxes](#)

# Geographic and Parameter Subsetting

- *Allows for custom design of delivered products, reducing bandwidth and researcher storage requirements*
- *Parameter subsetting particularly valuable for “fat” Level-3 products*
- *Involves some delay for file preparation, but runs rapidly in a disk-to-disk environment*
- *Subsetting engine is prototype for future “custom” products*

# AADS Present Status

- AADS Url: <http://aadsweb.nascom.nasa.gov/>
- LADS Url: <http://ladsweb.nascom.nasa.gov/>
- **Both archives are currently functioning and populated with Collection 4/5 Science test data; both are ready for production and public distribution in April (AADS) and September (LADS)**
  - **AADS used extensively for distribution of science test data**
  - **AADS tested at production rates of 20 data days per day**
  - **AADS web server tested with 50 simultaneous users**
- **Expect searches in seconds, native file orders ready immediately**
- **Email notification when subset orders are completed**
- **Support for multiple Collections (Collection 4 L3 data retained)**

# Future Plans

- *Continued interaction with science community to refine functionality*
- *Additional parameter imaging to support Q/A activities*
- *Add support for mosaicing, re-projections, and format conversions (NEO images, GeoTIFF, etc) plus new subsetting options*
- *L1B and geolocation available on a “processing-on-demand” basis*
- *Hope to offer reformatted products without need for web ordering*
- *Potential for data mining at community request*